

**Proposed Agreement between California Energy Commission
and
Gas Technology Institute (GTI)**

Title: Natural Gas Pipeline Research - Best Practices in Monitoring Technology
Amount: \$480,000.00
Term: 24 months
Contact: Matt Coldwell
Committee Meeting: 3/16/2011

Funding

FY	Program	Area	Initiative	Budget	This Project	Remaining Balance	
09	Natural Gas	ETSI	Integration of Smart Grid technologies	\$1,000,000	\$480,000	\$0	0%

Recommendation

Approve this agreement with Gas Technology Institute (GTI) for \$480,000.00. Staff recommends placing this item on the discussion agenda of the Commission Business Meeting.

Issue

The State's natural gas supply is conveyed through a system of pipelines that run throughout the state, including underneath areas of high population. The safety and security of the natural gas system infrastructure are important priorities for California, especially the prevention of catastrophic events on the natural gas pipeline. In the interest of enhancing the safety, operation, and management of the overall natural gas pipeline infrastructure, public interest research is needed to explore opportunities and apply new and emerging technologies related to natural gas pipeline integrity, operation, and safety.

Background

The State's natural gas system consists of a complex network of pipelines, designed to quickly and efficiently transport natural gas from its origin to areas of demand. California is the second-largest natural gas consuming state in the United States, just behind Texas. About 85 percent of the natural gas consumed in California is delivered on interstate pipelines from out-of-state supply basins located in the southwestern U.S, the Rockies, and Canada. As demand continues to increase, the systems' capacity needs to be assessed to ensure that it operates efficiently, safely, and that good technologies are used to report the system status.

Natural gas pipelines are routinely inspected for corrosion and defects in an effort to ensure pipeline safety and integrity. Inspections are conducted using various techniques. Inspection methods include direct assessment - actually going to the section of pipeline and inspecting it in person or through satellite surveillance. Hydrostatic assessment - demonstrating the integrity of a section of pipeline by increasing gas flows and pressure beyond its normal operation. Or, using "Smart Pigs" that are intelligent robotic devices that are propelled down pipelines to evaluate the interior of the pipe. Smart Pigs can test pipe thickness, and roundness, check for signs of corrosion, detect minute leaks, and any

other defect along the interior of the pipeline that may either impede the flow of gas, or pose a potential safety risk to the operation of the pipeline.

Proposed Work

In the interest of enhancing the safety and operation of the overall natural gas pipeline system, public interest research is needed to explore issues related to natural gas pipeline integrity and safety. A critical element of this needed research is an assessment of technologies that are used or could potentially be used to monitor pipeline integrity and safety. This assessment will include developing a baseline assessment of technology currently being used in California to manage pipeline integrity and safety. It will include what is currently being done to prevent, detect, and react to incidents (leaks and/or ruptures). It will assess all the available technology that could be used in California, but is not currently being used because it is either: (a) ready for use but not widely used on a commercial basis, (b) unknown, or (c) unproven. It will identify immediate opportunities to improve the assessment, monitoring, and integrity management program of the California pipeline network. The product of this research will be an implementation plan for currently available technologies, and a set of recommendations for the further development of existing emerging technologies and for the development of new technologies that address existing technological gaps. This research will benefit California citizens by increasing the safety and reliability of the State's natural gas pipeline system.

Justification and Goals

Supports California's goal to the 2008 Program Plan and Funding Request as approved by the CPUC; and to expand its analytical ability to determine the adequacy of its natural gas infrastructure and likelihood of potentially destructive peak demand spikes per the Integrated Energy Policy Report 2005.

This will be accomplished by:

- Defining the current state of technology in California related to underground natural gas pipeline assessment, monitoring and integrity management.
- Assessing currently available technologies which could be implemented to improve pipeline system integrity and status monitoring that are not currently in use.
- Evaluating new and emerging technologies that can address identified gaps which the current available technologies do not.
- Generating a testing, deployment, and implementation plan for available or near commercial technologies that address the identified gaps.